AD-A173 426 AUTOMATIC MICROWAVE SEMICONDUCTOR DEVICE TESTING(U) 1/1
HARRIS CORP SYOSSET NY GOVERNMENT SUPPORT SYSTEMS DIV
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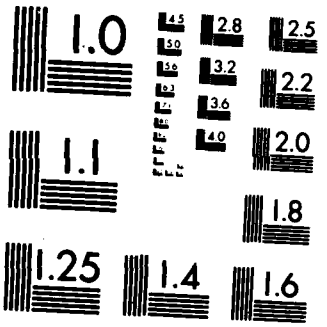

MICROCOPY RESOLUTION TEST CHART
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19. ABSTRACT (Continue on reverse if necessary and identify by block number)

During the past three months the project team has focused efforts in the following areas:

- Test Station Facility Layout,
- Computer System Integration,
- Project Preliminary Design Review,
- Switch Interface/Controller Design,
- Hardware Family Tree Documentation,
- Measurement Techniques Investigation,
- Proposal Formalization.

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FOURTH QUARTERLY REPORT

(April 16, 1986 - July 15, 1986)

During the past three months the Automatic Microwave Semiconductor Device Tester (AMSDT) project team has focused on work in the following areas:

- o Test Station Facility Layout
- o Computer System Integration
- o Project Preliminary Design Review
- o Switch Interface/Controller Design
- o Hardware Family Tree Documentation
- o Measurement Techniques Investigation
- o Proposal Formalization

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QUARTERLY STATUS REPORT

"AUTOMATIC MICROWAVE SEMICONDUCTOR

DEVICE TESTING"

FOURTH QUARTERLY PROGRESS REPORT

(April 16, 1986 to July 15, 1986)

This project has been accomplished as part of the US Army Manufacturing Methods and Technology (MM&T) Program, which has as its objective the timely establishment of manufacturing processes, techniques or equipment to insure the efficient production of current or future defense programs.

1. TEST STATION FACILITY LAYOUT

A preliminary facility layout plan has been prepared which illustrates the AMSDT program development work area. This sketch shows an area of approximately 150 square feet in which the 2-1/2 rack AMSDT hardware with computer peripheral table will be located. In addition, space has been allotted for a storage area and table. The project team is investigating two possible sites for the AMSDT station location. One site is in the Harris ATE integration area, while the other area is situated in the Harris model shop. Harris facility personnel have been requested to determine the adequacy of facility power and air ventilation in both sites. Site selection should be made in early September, followed by refurbishment of the site by Harris facility personnel. It is expected that the AMSDT racks will be put into place by mid-September.

2. COMPUTER SYSTEM INTEGRATION

The HP300 computer system has arrived at Harris and integration/familiarization of the system with peripherals is currently progressing in a temporary location, pending availability of the planned test station facility area.

This system includes the following major hardware components.

- HP98561B, Model 320 Series Computer System
- HP35741A, 12" RGB Color Video Display Monitor
- HP92916A Bar Code Reader
- HP9122D Double-sided 3 1/2" Dual Disc Drive
- HP7946A 55 Mbyte Disc/Tape Cartridge
- HP98625A Hard Disc Interface
- HP2934A Dot Matrix Impact Printer
- HP7475A Graphics Plotter

With completion of initial computer integration, the previously developed software simulations, which were done on the Harris HP800 computer, are being transferred over to the HP300 computer. New work has started on the expansion of menu-driven test routines.

3. PROJECT PRELIMINARY DESIGN REVIEW

An in-house preliminary design review on the AMSDT program was conducted at Harris on June 9, 1986. Cognizant managers from Harris' hardware, software, mechanical and systems engineering departments were in attendance. As a result of the meeting, the project team offered to expand upon the preliminary data package in terms of hardware and software. From a hardware viewpoint, the data package has been updated to define the specific semiconductor devices under test (DUTs), the parameters that are to be measured, and the major AMSDT instrumentation that is to be utilized. In all cases, specific DUTs have been cross referenced with a manufacturer's part number and physical description. In terms of software updates, a software data package has been released which defines the function of each software module and illustrates their relationship to the system processors and testing scenario.

4. SWITCH INTERFACE/CONTROLLER DESIGN

Design work has been completed on the AMSDT I/O (Input/Output) switch. This assembly, under program control, will switch most of the stimulus and measurement hardware instrumentation to the DUT. The hardware design package consists of schematic and assembly diagram of the switch controller and switch driver, along with mechanical design of the switch bucket and all associated parts lists . The design has been reviewed and requisitions have been submitted for all hardware items. Work is continuing on the development of the firmware for the switch.

5. HARDWARE FAMILY TREE DOCUMENTATION

A detailed hardware family tree is being prepared which highlights all the major hardware elements for the 2-1/2 rack AMSDT test station and computer peripherals. The document is expected to be released by early September.

6. MEASUREMENT TECHNIQUES INVESTIGATION

The project team has written one tutorial paper concerning the following:

"Noise Figure Calculations in Terms of Available Gain in 'S'-Parameters".

This paper develops the noise figure formulas in terms of available gain and input VSWR. These formulas are further defined in terms of the 'S' parameter data obtained in measurements with the HP8510A Network Analyzer.

7. PROPOSAL FORMALIZATION

Two proposals have been prepared for the following improvements to the AMSDT system:

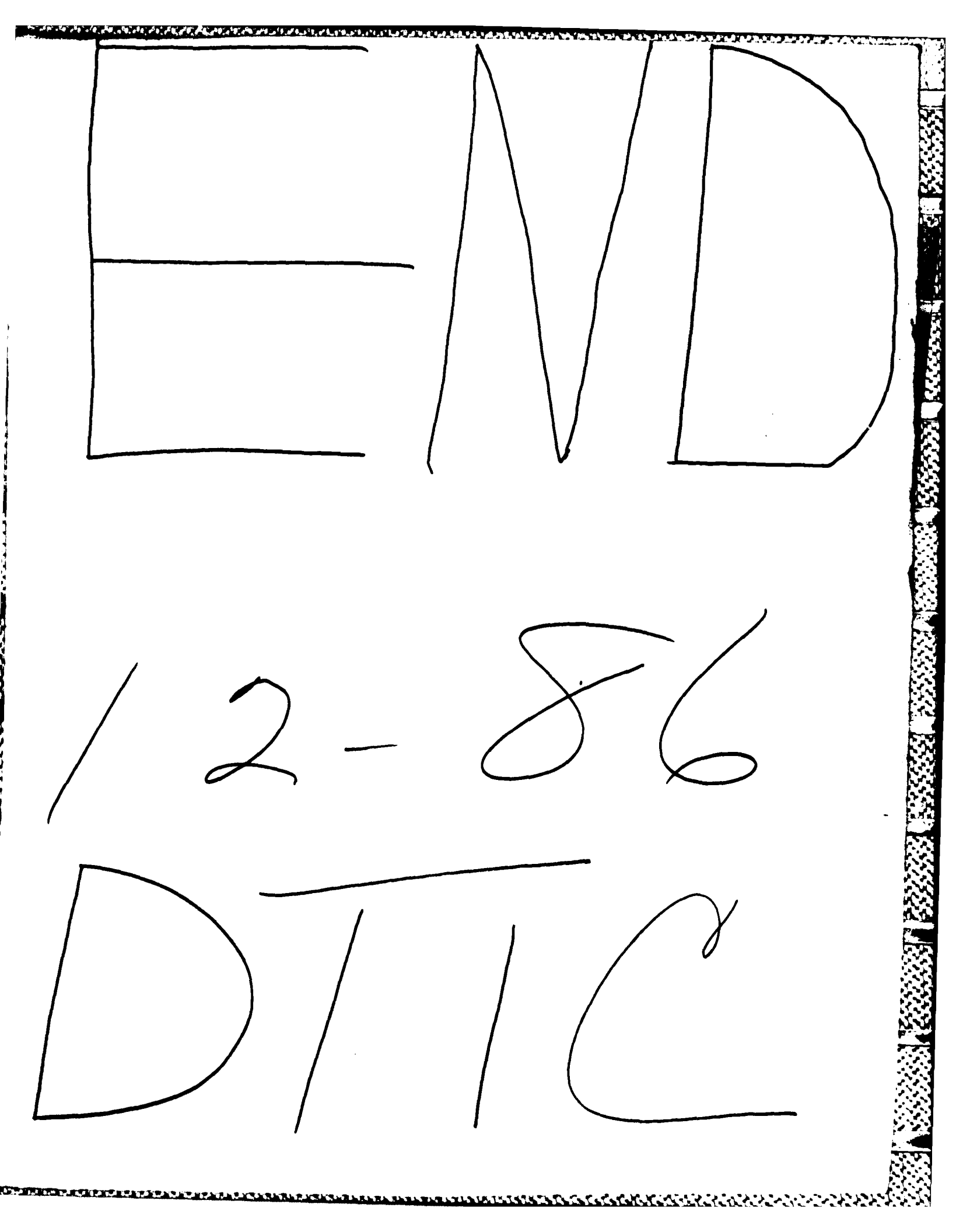
- Touch-Screen Capability.

  This proposal details the integration of a touch-screen to the CRT monitor of the AMSDT. The touch-screen is attached to the existing 12 inch CRT color monitor. Once installed, the touch screen, in conjunction with the AMSDT, offers the operator many advantages including fast response and operation, single and direct use of "menu selection" on the CRT, and the improvement of the operator/computer interface.

- Shared Resource Management (SRM) Capability.

  This proposal discusses the ability of the AMSDT to be contained within a multi-user network. In this manner, remote workstations can connect to the AMSDT peripherals for manipulation of mass storage data transfer and independent program development.

These proposals are expected to be released at the end of August.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